Lead Poisoning Education and Intervention:
A Toolkit with Recommendations and Resources

Lead hurts kids and we want to prevent exposure before it happens. Lead from old paint poisons children and reduces their future potential. The resulting harm to our communities and society is preventable.

Change in the Intervention Blood Lead Level

Previously, a child's blood lead level (BLL) of 10 micrograms per deciliter (mcg/dL) was considered in need of intervention. In May 2012, the Centers for Disease Control and Prevention (CDC) accepted their advisory committee's recommendation[1] to revise the BLL at which the health system responds to childhood lead exposure, from 10mcg/dL to 5mcg/dL. While no level of lead in the blood is safe, the new action level is based on the population of children under age 6 whose BLLs are in the top 2.5 percent of children tested for lead. These children have enough of the toxin in their system to present a "level of concern."

CDC's decision to lower the intervention BLL[2] was based on a large body of research that shows that low levels of lead in young children damage the brain and impair the cardiovascular, endocrine and immune systems, causing lifelong health, learning and behavior problems.

How Does This Change Affect Wisconsin Children and Families?

This change increased the number of Wisconsin children under age 6 in 2011who are at risk for cognitive deficits and other lifelong health problems due to lead exposure, from 876 children to more than 7,500 children[3].

In the past, blood lead levels below 10mcg/dL may or may not have been reported to parents. The new lower value means that more children will be identified as having lead exposure earlier, allowing parents, clinicians, and public health officials to take action earlier to reduce the child's future exposure to lead.

What Can We Do About It? Educate!

- Educate the community.
- Educate parents. More than 7,500 families per year, *nearly ten times the number of families in previous years with BLLs requiring action,* should now be educated about childhood lead exposure.
- Reach out to health care providers.

This toolkit has many resources for educating these audiences. Read on for more information.

The *Lead Poisoning Education and Intervention* toolkit is available on the Lead-Safe Wisconsin[4] website. For more information on this toolkit, please contact Reghan Walsh, 608/261-9432, reghan.walsh@wi.gov.

This educational resource has been reviewed and is approved by the Wisconsin Division of Public Health (P-00554).

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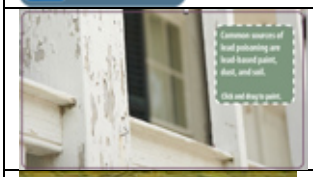
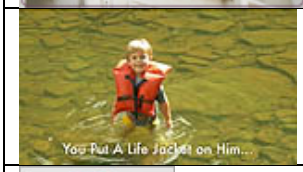
Educating the Community

National Lead Poisoning Prevention Week is October 20 - 26, 2013. Educating about the dangers of lead exposure to young children and what actions can be taken (see pages 4-5) to protect children from harm is important all year round. However, National Lead Poisoning Prevention Week (NLPPW) in October each year presents a unique opportunity to educate the general public. The theme for NLPPW 2013 is "Lead-Free Kids for a Healthy Future" and the key messages are "Get Your Home Tested. Get Your Kids Tested. Get the Facts."

CDC's NLPPW 2013 toolkit[5] has materials to help you promote NLPPW 2013. Materials include:

	Camera-ready posters/flyers and ones that you can modify to add your agency's information. Sample press release that you can customize for your community. Newsletter article for organizations' publications, e.g., schools, PTAs. Key messages that you can use as "tweets" or when talking with the media or the public.
	Buttons, badges and stickers and web banners to enhance your website, blog or social media networking profiles.
	Health-e-cards you can send to your contacts by email.
	Winning video PSAs from the EPA 2009 Lead Poisoning Awareness contest (available on YouTube) that you can share on social media networking profiles.
	Audio podcasts from CDC about lead poisoning prevention and from EPA about the Renovation, Repair and Painting Rule, to link to on social media networking profiles.

The First Annual International Lead Poisoning Prevention Week of Action is also taking place during the Week of October 20 to 26. Information can found on their website[6] about events taking place[7] during this observance around the world--in Africa, Australia, the Congo, India, Nepal, Nigeria, Sudan, and Sri Lanka.

Educating Parents

The National Center for Healthy Housing has a new tool, *Your Child's Blood Lead Test Results*[8], which is very useful to share with parents. This factsheet explains how to interpret the child's blood lead test result and gives recommendations for action for an elevated blood lead level.

On the reverse side of the factsheet is a comprehensive checklist that is intended for parents to understand what's expected when working with their child's health care provider and how to identify possible sources of lead in and around their home. The checklist includes questions regarding both paint and non-paint sources of lead, with corresponding links to websites with more information.

In Wisconsin, the most common source of lead poisoning is deteriorated lead-based paint and lead-contaminated dust. A small number of lead poisoning cases have been caused by non-paint sources, such as kohl eyeliner, religious powders, traditional remedies, metal keychain and lead-containing dishes. See the links to factsheets at the end of this toolkit.

To encourage the use of this excellent tool, please share the parent factsheet and checklist with staff in WIC, home visiting programs such as PNCC or newborn home visits, and other programs that interact with families with young children, such as Head Start. If a parent receives this tool from a variety of people they interact with, the parent is more likely to complete the checklist. CDC also has prevention tips[9] on their webpage.

Outreach to Health Care Providers

The American Academy of Pediatricians (AAP) concurred with CDC's decision to lower the reference level for intervention. From a May 16, 2013, AAP press release[10] "'Today, the Centers for Disease Control and Prevention affirmed what pediatricians have recognized for decades: There is simply no safe level of lead exposure for children,' said AAP President Robert W. Block, MD, FAAP." Informing or reminding health care providers of the AAP's position can be helpful.

Clinicians play an important role in preventing lead exposure. They should be a consistent and reliable source of information in educating families about the risks of lead exposure. They are often the primary source of nutritional guidance for parents and can identify a child with inadequate intake of nutrients that play a specific role in minimizing lead absorption.

CDC recommends that the anticipatory guidance given to parents cover a number of lead risk topics, including:

- In-home exposures,
- Unsafe renovation practices,
- Potential lead exposures associated with parent occupations and hobbies,
- Information on identifying lead hazards and safe/reliable ways to minimize exposures, and,
- Contact information for additional lead-related resources, including funding for lead hazard reduction.

In addition, clinicians also have a role in recognizing risks from potential lead exposures specific to immigrant communities, refugees and children adopted from foreign countries, who's previous or ongoing lead exposure may include folk/home remedies, medications, toys, cosmetics, food, ceramic ware and other less common items. CDC's prevention tips[9] cover non-residential paint sources of lead. The health care provider can share the NCHH's tool, *Your Child's Blood Lead Test Results*[8] (mentioned above) with parents, which includes the anticipatory guidance CDC recommends clinicians provide. The article titled, *Unsafe Harbor? Elevated Blood Lead Levels in Refugee Children*[11], from the June 2013 *Environmental Health Perspectives Journal*, also discusses unusual sources of lead.

Many LHDs have an e-bulletin, newsletter or other such method to share information with area health care providers. CDC's *Blood Lead Levels in Children*[12] factsheet for clinicians is useful for their own understanding of the revised reference level and how to help parents understand what they can do next to minimize their child's exposure. In addition, AAP and PEHSU developed clinical practice guidelines for medical management of childhood lead exposure and poisoning[13] for clinicians, updated in June, 2013. Some LHDs have already shared this valuable information with them. If you would like to discuss specific plans to reach out to health care providers in your area, please contact us, 608-266-5817.

CDC Recommended Actions Based on Blood Lead Level

For the child identified with a BLL result greater than or equal to the reference value, ongoing monitoring of the BLL is indicated during and after appropriate medical, educational and environmental interventions (see tables below). BLLs that rise may be indicative of an unrecognized source of exposure, inappropriate abatement activities, failure to mitigate the identified hazard, or the redistribution of lead stores within the child's body. For the child with a rising BLL, additional medical and environmental evaluation and interventions may be necessary, along with ongoing coordination of care with the local CLPPP. This monitoring is essential to identify a given source of lead, help determine if there is any ongoing exposure, and to verify the decline in BLL after lead sources have been reduced or eliminated.

Table 1. Recommended Schedule for Obtaining a Confirmatory Venous Sample

Blood Lead Level (mcg/dL)	Time to Confirmation Testing
≥ Reference Value - 9	1 – 3 months
10 - 44	1 week – 1 month*
45 - 59	48 hours
60 – 69	24 hours
≥ 70	Urgently as emergency test

* The higher the BLL on the screening test, the more urgent the need for confirmatory testing. (Adapted from: Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officers. Atlanta: CDC; 1997.)

Table 2. Schedule for Follow-up Blood Lead Testing[a]

Venous Blood Lead Level (mcg/dL)	Early Follow-up Testing (2 - 4 tests after identification)	Later Follow-up Testing After Blood Lead Level Declining
≥ Reference Value - 9	3 months *	6 – 9 months
10 – 19	1 – 3 months *	3 – 6 months
20 – 24	1 – 3 months *	1 – 3 months
25 – 44	2 weeks – 1 month	1 month
≥ 45	As soon as possible	As soon as possible

[a] Seasonal variation of BLLs exists and may be more apparent in colder climate areas. Greater exposure in the summer months may necessitate more frequent follow-ups.

* Some case managers or clinicians may choose to repeat blood lead tests on all new patients within a month to ensure that their BLL is not rising more quickly than anticipated.

Table 3. Recommended Actions based on Blood Lead Level

Venous Blood Lead Level (mcg/dL)	Interventions
< Reference Value	• Lead education – dietary & environmental • Environmental assessment* for pre-1978 housing • Follow-up BLL monitoring
≥ Reference Value - 44	Actions for previous level plus: • Environmental investigation and lead hazard reduction • Complete health history and physical exam • Lab work – iron status and consider hemoglobin or hematocrit • Neurodevelopmental monitoring • Abdominal x-ray (if particulate lead ingestion is suspected) with bowel decontamination if indicated
45 – 69	• Actions for previous level plus: • Free erythrocyte protoporphyrin laboratory test • Oral Chelation therapy (consider hospitalization if lead-safe environment cannot be assured)
≥ 70	• Hospitalize and commence chelation therapy (following confirmatory venous blood lead test) in conjunction with consultation from a medical toxicologist or a pediatric environmental health specialty unit • Proceed according to actions for 45-69mcg/dL

*The scope of an "environmental assessment" will vary based on local resources and site conditions. However, this would include at a minimum a visual assessment of paint and housing conditions, but may also include testing of paint, soil, dust, and water and other lead sources. This may include looking for exposure from imported cosmetics, traditional remedies, medicinal powders, pottery, food, toys, etc., which may be more important with low level exposure.

Website URLs:

1. Advisory Committee on Childhood Lead Poisoning Prevention recommendations, http://www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf
2. CDC's decision to lower the intervention level, http://www.cdc.gov/nceh/lead/ACCLPP/CDC_Response_Lead_Exposure_Recs.pdf
3. Table of the Number of Children Under Age Six, Tested and Confirmed by State and BLL Group, 2011, http://www.cdc.gov/nceh/lead/data/StateConfirmedByYear1997-2011.htm
4. Lead-Safe Wisconsin, http://dhs.wisconsin.gov/lead
5. NLPPW toolkit, http://www.cdc.gov/nceh/lead/nlppw.htm#.
    - Camera-ready posters/flyers, http://www.cdc.gov/nceh/lead/nlppw.htm#posters_flyers.
    - Sample press release, http://www.cdc.gov/nceh/lead/nlppw.htm#press.
    - Newsletter article, http://www.cdc.gov/nceh/lead/nlppw.htm#newsletter.
    - Key messages, http://www.cdc.gov/nceh/lead/nlppw.htm#key_messages.
    - Button, badges and stickers, http://www.cdc.gov/nceh/lead/nlppw.htm#button
    - Web banners, http://www.cdc.gov/nceh/lead/nlppw.htm#banner
    - Health-e-cards, http://www.cdc.gov/nceh/lead/nlppw.htm#ecard.
    - Winning video PSAs, http://www.cdc.gov/nceh/lead/nlppw.htm#video.
    - Audio podcasts from CDC, http://www.cdc.gov/nceh/lead/nlppw.htm#podcast, and from EPA, http://www2c.cdc.gov/podcasts/player.asp?f=10121
6. First International Lead Poisoning Prevention Week of Action, http://www.who.int/ipcs/lead_campaign/pb_campaign/en/index.html
7. International observance events, http://www.who.int/ipcs/assessment/public_health/events/en/index.html
8. The National Center for Healthy Housing's *Your Child's Blood Lead Test Results* factsheet and checklist, http://www.nchh.org/Portals/0/Contents/Consumer%20BLL%20Fact%20Sheet%208-7-12.pdf
9. CDC lead poisoning prevention tips, http://www.cdc.gov/nceh/lead/tips.htm
10. American Academy of Pediatricians press release, http://www.aap.org/en-us/about-the-aap/aap-press-room/pages/AAP-Statement-CDC-Revised-Lead-Exposure-Guidelines.aspx
11. Unsafe Harbor? Elevated Blood Lead Levels in Refugee Children, http://dx.doi.org/10.1289/ehp.121-a190
12. CDC's guidance sheet, *Blood Lead Levels in Children*, for health care providers, http://www.cdc.gov/nceh/lead/ACCLPP/Lead_Levels_in_Children_Fact_Sheet.pdf
13. AAAP and PEHSU clinical practice guidelines, http://aoec.org/pehsu/documents/medical-mgmnt-childhood-lead-exposure-June-2013.pdf.